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I

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NICOLAS ASSUR CORFÙ

## The *Tetartemorion*, the smallest pre-Hellenistic silver-coin

### Introduction

This paper is only a brief, incomplete overview of small silver-coins of pre-Hellenistic date, just to attract attention to these coins and not to give detailed results.

The main features:

The weight is about 0,2 g, and the size about 6 mm in diameter. The weight corresponds to the classical Greek weight-unit “Kerat”.<sup>1</sup> Kerat is equivalent to Karat of today (0,200 g). This amount is the weight of a seed of the carob tree.<sup>2</sup>

The *Tetartemorion* is mainly attested to mints of Asia Minor where also small fractions of Staters<sup>3</sup> and Siglos<sup>4</sup> were emitted. Small coins occur normally not in coin hoards as larger coins were hoarded up.<sup>5</sup> Due to its size the *Tetartemorion* is difficult to find today. Therefore, in present days, *Tetartemoria* are mainly a phenomenon beginning in the 1980’s. In 1984 Troxell published some *Tetartemoria* from Caria<sup>6</sup> and in 1989 Troxell and Kagan published some *Tetartemoria* from Cilicia.<sup>7</sup>

To visualize the size, figure 1 depicts four examples in relation to the size of a modern one Euro cent coin. The weight of that with an astragal shows with 0,06 g the lowest weight.

### 1. The Greek texts

The term “*Tetartemorion*” occurs in the classical texts very often because it means literally “the quarter part of”. But in connection with coins it is very rare and is found for the first time in the 4<sup>th</sup> c. BC with Deinarchos, handed down by Harpocration: “The *Tetartemorion* is the fourth part of the Obolos, which is two Chalkoi.”<sup>8</sup> Deinarchos was a speaker in Athens of the 4<sup>th</sup> c. BC. So the term “*Tetartemorion*” occurs in the Greek texts long after its introduction as a coin in the late 6<sup>th</sup> c. BC (s. sub 3. and 4.1.).

The meaning as a coin is remembered by Pollux in the AD 2<sup>nd</sup> c., long after its end of emission. He explained terms of small coins with reference to Philemon of

Sardeis.<sup>9</sup> The last mention of the term “*Tetartemorion*” as a coin in antiquity is with Hesychios (AD 5<sup>th</sup>/6<sup>th</sup> c.) posting that a *Tetartemorion* corresponds to two Chalkoi.<sup>10</sup>

### 2. Known mints emitting *Tetartemoria*

As the *Tetartemorion* is equivalent to a quarter Obolos, only mints emitting Oboloi are to be considered as mints with an emission of *Tetartemoria*. Many *Tetartemoria* are not yet assigned to a mint. *Tetartemoria* are reported from: Ephesos,<sup>11</sup> Kebren,<sup>12</sup> Klazomenai,<sup>13</sup> Kolophon,<sup>14</sup> Kyme,<sup>15</sup> Miletos,<sup>16</sup> Phokaia,<sup>17</sup> Soloi,<sup>18</sup> Teos,<sup>19</sup> Gorgippa,<sup>20</sup> Theodosia,<sup>21</sup> Kyzikos,<sup>22</sup> Lamponcia,<sup>23</sup> Erythrai,<sup>24</sup> Mylasa,<sup>25</sup> Euromos,<sup>26</sup> Mallos.<sup>27</sup> From Thracia: Apollonia ad Pontos.<sup>28</sup>

Athens emitted quarter Oboloi (= *Tetartemoria*) around 500 BC.<sup>29</sup> Pantikapaion and Myrmekion emitted *Tetartemoria* in the 6<sup>th</sup> and 5<sup>th</sup> c. BC.<sup>30</sup> Also a Bosporan city emitted *Tetartemoria* in the 5<sup>th</sup> c. BC.<sup>31</sup>

### 3. *Tetartemoria* of Asia Minor

The following data were collected from a database in the internet with coins sold in the last 15 years: <http://www.ac-search.info/>. This is meaningful as we can rely on a statistically relevant number of specimens in good preservation.

<sup>9</sup> Julius Pollux Gramm., *Onomasticon*. Book 9 section 65.

<sup>10</sup> Hesychius Lexicogr., *Lexicon (P—W)*. Alphabetic letter tau entry 583.

<sup>11</sup> Kraay 1964, p. 88; Klein 1999, Nr. 370-371; Lang 2003, I, p. 295.

<sup>12</sup> Lang 2003, I, p. 533.

<sup>13</sup> Lang 2003, I, p. 567.

<sup>14</sup> Kraay 1964, p. 88; Klein 1999, Nr. 398-400, 403; Lang 2003, I, p. 588.

<sup>15</sup> Lang 2003, I, p. 627.

<sup>16</sup> Lang 2003, II, p. 78.

<sup>17</sup> Waggoner 1983, Nr. 598; Klein 1999, Nr. 448, 450-451; Lang 2003, II, p. 305.

<sup>18</sup> Lang 2003, II, p. 473.

<sup>19</sup> Kraay 1964, p. 88; Waggoner 1983, Nr. 604; Klein 1999, Nr. 475, 480-481; Lang 2003, II, p. 539.

<sup>20</sup> Hoover 2012, p. 5.

<sup>21</sup> Hoover 2012, p. 38.

<sup>22</sup> Waggoner 1983, Nr. 516; Klein 1999, Nr. 269.

<sup>23</sup> Klein 1999, Nr. 317.

<sup>24</sup> Kraay 1964, p. 88.

<sup>25</sup> Klein 1999, Nr. 507.

<sup>26</sup> Klein 1999, Nr. 514.

<sup>27</sup> Klein 1999, Nr. 665.

<sup>28</sup> Klein 1999, Nr. 87.

<sup>29</sup> Davis 1960, p. 71; Klein 1999, Nr. 201-202; Van Alfén 2012, p. 94, Fig. 5.11.

<sup>30</sup> Frolova 1991, p. 68; Hoover 2012, p. 17.

<sup>31</sup> Frolova 2002, p. 218-224. Frolova 2002 (p. 226) argues that Hemitetartemoria existed.

<sup>1</sup> Turnbull *et al.* 2006, p. 397.

<sup>2</sup> Turnbull *et al.* 2006, p. 398.

<sup>3</sup> Metcalf 2012, p. 40.

<sup>4</sup> Corfù 2012.

<sup>5</sup> Kim 2001, p. 12. But see CH I,3.

<sup>6</sup> Troxell 1984.

<sup>7</sup> Troxell, Kagan 1989.

<sup>8</sup> Dinarchus Orat., *Fragmenta*. Oration 19 fragment 11 line 3 (Harpocr. s.v. τεταρτημόριον Bachm. Anecd. 385, 11)

### 3.1. *Weights of coins from Asia Minor*

Collecting data for Tetartemoria of three mints reveals the following:

Phokaia: Griffon head/Incuse, 530-500 BC, Average = 0.25 +/- 0.06 g, n = 31

Phokaia: Male head/Incuse, 530-500 BC, Average = 0.18 +/- 0.04 g, n = 10

Kolophon: Frontal Apollo head/TE-Monogramm, 5<sup>th</sup> c. BC, Average = 0.24 +/- 0.03 g, n = 57

Kolophon: Male head r./TE-Monogramm, 5<sup>th</sup> c. BC, Average = 0.26 +/- 0.05 g, n = 23

Ephesos: Bee/Incuse, 550-480 BC, Average = 0.23 +/- 0.08 g, n = 5

Ephesos: Bee/Star, 550-420 BC, Average = 0.22 +/- 0.09 g, n = 11

Ephesos: Bee/Eagle head with ethnicon, 500-420 BC, Average = 0.19 +/- 0.03 g, n = 36

The average weight of all these 173 coins is 0.23 +/- 0.05 g and a plot depicts a slightly asymmetric distribution of the weights towards higher values (no Gaussian curve, checked by a statistical Chi-square-Test). That means the deviation of the values from the average is not pure statistical. A plot of the above 57 species of Kolophon alone, which are surely Tetartemoria (attested by TE-monogram) also presents the same asymmetric curve showing that probably the procedure of making the small flans is the reason for the asymmetry. The standard deviation in all cases makes it useless to look for different weight standards (like the Phocaean or Milesian) as the weight distribution of each of the above seven individual types are all overlapping within one standard deviation. I.e. no statistically significant difference between the above seven types of coins is evident. In addition no hint for the existence of a "Hemitetartemorion" can be figured out. The number of species of 57 and 173 respectively is on a secure base for this statement. Anyway, in the classical Greek texts the term "Hemitetartemorion" does not occur. The large standard deviations point to a minting according to "al marco". No distinction in weight between the different types of the above three mints is identifiable proven by the overlapping distributions of weights within one standard deviation.

Having a look at Ephesos no distinction in the weights from the three different types, and again no Hemitetartemorion are recognizable. But the number of three types shows that the Tetartemorion was a current coin. The large standard deviation hinders a distinction based only on weight of Tetartemoria from a 1/24 Siglos<sup>32</sup> or from small fractions of a 1/96 or a 1/48 of the different Staters,<sup>33</sup> respectively. These coins have also always a diameter of ca. 6 mm.

### 4. *Tetartemorion versus Hemiobolos*

Looking for a distinction between Tetartemorion and Hemiobolos we consider the types of Kolophon (Fig. 2). The above two types of Tetartemoria with average 0.24 +/- 0.03 g, n = 57 and 0.26 +/- 0.05 g, n = 23, respectively are separated by obverse type but not by weight. The average weight of the Hemiobolos is 0.44 +/- 0.06 g, n = 21. The separation by weight is obvious as the average weights do not overlap – the type of Tetartemorion with the same obverse type as the Hemiobolos (frontal head of Apollo) but different reverse does not overlap even taken two standard deviations. On the reverse of the Hemiobolos is a Greek monogram normally read as HM. But on a few specimens it could be interpreted as the letter "Eta" combined with arrow shaped sticks (Fig. 2). These sticks revoke the original meaning of Obolos which is a pike or a spit. And the Eta stands for "Hemi" in Greek, meaning "Hemiobolos". So the TE-monogram on the Tetartemoria of Kolophon stands probably for "Tetartemorion".

### 5. *Mainland Greece*

Having a look at mainland Greece we see that the Tetartemorion existed but seems to be a rare nominal and scarce in specimens. This might be due to the situation of surviving and discovering today of these coins. Some scholars call the Tetartemorion numerous in Athens.<sup>34</sup> At least in the 5<sup>th</sup> c. BC the Hemioboloi were numerous in central Greece.<sup>35</sup> An inscription is known telling us that on the Tetartemorion of Athens from about 430 to 322 BC a crescent is on the reverse.<sup>36</sup> The Tritetartemorion (=Tritarmorion) has three<sup>37</sup> of them and the Obolos four.<sup>38</sup> We can interpret the crescent as a seed of the carob tree, which looks like a crescent and has a weight of 0,2 g – the ancient Greek unit Kerat. So one crescent (0.2 g) stands for Tetartemorion, three of them (0.6 g) for the Tritetartemorion (=Tritarmorion), and four (0.8 g) for the Tetratetartemorion (= Obolos). Therefore the value of the coin is represented on it.

### 6. *The equivalent of Tetartemoria*

For the purchasing power of a Tetartemorion we have no hints from the classical Greek texts.

But the daily use of the Tetartemorion can be figured out by having a look at salaries and prices. The lowest daily salary in the 5<sup>th</sup> c. BC was two Oboloi (= 8 Tetartemoria). Probably this amount corresponds to the average salary of farmers, workers, and small scale dealers. Three Oboloi were the salary for the service in the navy. Around 420 BC a Hoplites got four Oboloi. For around 350 BC De-

<sup>32</sup> Corfù 2012, p. 46.

<sup>33</sup> Metcalf 2012, p. 40.

<sup>34</sup> Franke, Hirmer 1964, p. 32.

<sup>35</sup> Kraay 1964, p. 87.

<sup>36</sup> Keil 1892.

<sup>37</sup> Klein 1999, Nr. 203.

<sup>38</sup> Keil 1892, p. 646.

mosthenes states four Oboloi as the daily salary. In the course of the 4<sup>th</sup> c. BC the prizes increased.<sup>39</sup> In the 5<sup>th</sup> and 4<sup>th</sup> c. BC Athenians salary in the navy was two to four Oboloi.<sup>40</sup> Leasing out a slave costed one Obolos per day.<sup>41</sup>

A salary of 8 to 16 Tetartemoria per day allows to pay the daily expenses for foodstuffs.<sup>42</sup> This is shown by the following examples:<sup>43</sup>

Ca. 400 BC:	1 Choinix (ca. 1 liter) olives = 2 chalkoi = 1 Tetartemorion
414 BC:	1 Metretes (39 l) cheap wine = 4 Oboloi = 16 Tetartemoria 1 Diphros (stool) = 1 Obolos = 4 Tetartemoria
425 BC:	1 Lekythos – a vessel = 1 Obolos = 4 Tetartemoria
4 <sup>th</sup> c. BC:	1 Medimnos (52,5 l) corn = 6 Drachme = 144 Tetartemoria so: 0,36 l corn = 1 Tetartemorion
4 <sup>th</sup> c. BC:	1 Loaf of bread = 1 Obolos = 4 Tetartemoria <sup>44</sup>

Literary and epigraphical hints exist that small coins were in daily use at least in Athens.<sup>45</sup>

## 7. A new series of Tetartemoria from Asia Minor<sup>46</sup>

The unifying feature of a new series is the obverse type which is an archer with bow and dagger. The prototype of the archer is found on the coin Siglos from Sardeis, exactly the so-called type “IV late” giving a *terminus post quem* of considerably later than 425 BC.<sup>47</sup>

Overall 12 different reverse types exist always with the same obverse type (Fig.3). The reverse types show 10 anthropomorphic heads of deities and humans and two animals: the head of – a king, – Athena (l. and r.), – Hermes, – Apollo (frontal, l.,  $\frac{3}{4}$  l., and  $\frac{3}{4}$  r.), – a satrap, – a young man, a horse forepart and an owl.

### 7.1. Origin of this new series

For comparison we look at some Hemioboloi.

First Kasolaba in Caria:<sup>48</sup> Both obverse and reverse types correspond, and the ethnicon K on a coin of the new series is in agreement with Kasolaba. This Hemiobolos is from Caria due to the three Carian letters “azo”<sup>49</sup> (Fig. 4).

Second Cilicia: Both obverse and reverse types correspond. This Hemiobolos is from Cilicia due to the Aramaic letter Bet for Baal (Fig. 4).

If we would have only these two types we would say one is from Kasolaba and the other from Cilicia. But we have a whole series with 8 main types.

A look at the style of a Cilician Hermes head, which is from Cilicia due to the Aramaic letters Bet and Lamed in retrograde for Baal, shows the great difference (Fig. 5). Our new Hermes head type is of too high quality for being from Cilicia. A Tetartemorion from Cilicia exists showing a frontal Apollo. But the quality of the Cilician coin is much lower than that of our coin (Fig. 5).

A comparison with coins from Kolophon shows us that all our four kinds of Apollo heads are attested at Kolophon, as well as the forepart of a horse (Fig. 6).

These arguments speak for Kolophon as the mint of the new series.

- All four Apollo heads of Kolophon are equivalent to those of our new series.
  - The horse forepart is attested at Kolophon.
  - The ethnicon Kappa fits for Kolophon although it is not clear-cut.
  - Known are Tetartemoria from Kolophon of the 5<sup>th</sup> c. BC,<sup>50</sup> but so far none of the 4<sup>th</sup> c. BC.<sup>51</sup>
- Anyway, the new series attests that the Tetartemorion was an important and current coin in daily life.<sup>52</sup>

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<sup>39</sup> Zimmermann 1974, pp. 98-104.

<sup>40</sup> Aperghis 2013, pp. 8-9.

<sup>41</sup> Davis 2014, p. 270.

<sup>42</sup> Kim 2001, pp. 12-13.

<sup>43</sup> Zimmermann 1974, pp. 102-103.

<sup>44</sup> Economou *et al.* 2015, p. 259, Fig. 9.

<sup>45</sup> Kraay 1964, p. 87.

<sup>46</sup> Corfü 2015.

<sup>47</sup> Corfü 2010, pp. 165-167.

<sup>48</sup> Konuk 2009.

<sup>49</sup> Konuk 2009, Nr. 11.

<sup>50</sup> Lang 2003, p. 588; Kolophon had a massive production of small change: Konuk 2012, p. 53.

<sup>51</sup> According to Milne the Tetartemorion series with the TE monogram on the reverse ends around 400 BC. For his period III and IV (ca. 389-330 BC) he mentioned no Tetartemorion: Milne 1941, pp. 36-41, 49-62.

<sup>52</sup> Kim 2001, pp. 12-13: in daily life hundreds of thousands of small coins must have existed.



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Fig. 1 Size of Tetartemoria in relation to a One-Euro-Cent-Coin of today (ca. 2.5:1).



Fig. 2 Kolophon, Tetartemorion, 0.23 g, 6 mm (Milne 1941, 7-11) – Hemiobol, 0.37 g, 8 mm (Milne 1941, 2-6), 5th c. BC.



Fig. 3 The new series of Tetartemoria (ca. 3:1, 6 mm).



Fig. 6 Left new series (6 mm), right coins from Kolophon (from top to bottom: 7 mm Milne 1941, 7-11; 11 mm Milne 1941, 60,62; 7 mm, Milne 1941, 11; 16 mm, Milne 1941, 145-146; 15 mm, Milne 1941, 101-121).



Fig. 4 Left two species of the new series (6 mm), right above Hemiobolos of Kasolaba (8 mm), right below Hemiobolos (8 mm) from Cilicia.



Fig. 5 Left from the new series (6 mm), right from Cilicia (8 mm, Troxell-Kagan 1989, 26a; 20a).